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School achievement and changes in inclusive vs exclusive support over 50 years in Sweden regarding students with intellectual disabilities and special educational needs

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ABSTRACT

The Swedish educational system is recognized as being highly inclusive. Nevertheless, support in special classes and placing students with intellectual disabilities in special schools have increased after the mid-1990s. The study involves 65 thousand students in seven cohorts (born 1967–2004), participating in the Swedish longitudinal project Evaluation through Follow Up. It focuses on students with mild intellectual disabilities (MID) in the Swedish compulsory school and students with special educational needs (SEN) who received inclusive or exclusive support, compared to regular students without MID, SEN or support. Findings show inclusive support to dominate prior to the mid-1990s for both MID and SEN students. After that, increases in exclusive support solutions are noted. The high achievements demonstrated by MID and SEN students with inclusive support in all cohorts over a period of 50 years provide impetus for offering vulnerable student groups better opportunities for equal participation in regular classes.

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Mild intellectual disabilities; special educational needs; inclusion; exclusion; achievement; 7 birth cohorts; changes over 50 years

Introduction

The Swedish educational system is often recognized as being highly inclusive. In fact, Sweden was among the first-generation inclusive education countries with a historical strongly policy commitment to inclusive education prior to Salamanca (Kozleski et al., 2011). Already in the early 1960s Sweden implemented “a school for all” with a national curriculum designed for all students, including those with physical and intellectual disabilities (Emanuelsson et al., 2001). In the 1970s and 1980s, the mainstreaming of students with disabilities was strengthened even more by a series of reforms. The reforms were based on Sweden’s fundamental democratic visions that inclusion is the most effective means to build a better society for all and ensure disadvantaged groups equal opportunities for quality education and a good life (Tössebro et al., 1996). In order to meet the wide diversity of student characteristics, all teaching is to be individually adapted to every child’s unique prerequisites, interests and learning needs (Giota, 2013), at the same time as all students participate as equal members of the community irrespective of their individual differences (e.g., background). In many other countries, often in the north, the inclusive movement gained support from the mid-1980s. In a research review, empirical findings show inclusion to still be largely restricted to placing children with disabilities in regular schools (Nilholm & Göransson, 2017).

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In the late 1990s, the Swedish education law (SFS, 2010, p. 80) was centered even more on ensuring an inclusive education that meets the needs of all students within the regular class. However, if there are special reasons, support may be given in special support classes (SSC) over a shorter period and be restricted to school subjects. Nevertheless, according to the National Agency for Education (NAE, 2014), students placed in such classes tend to remain in these solutions for the rest of the school year or longer and some (Giota et al., 2009) even most time of their compulsory schooling. Aside to negative social consequences of being placed in such a class, segregated solutions tend to become permanent and students rarely reach the educational goals intended at the same time or level as their peers (Emanuelsson & Persson, 2002). Thus, despite democratic policy ideals of inclusion and a school for all, research show exclusion to still permeate the Swedish educational system (Giota & Emanuelsson, 2011; Göransson et al., 2011).

NAE (2021) suggests that only 1.3 percent of the compulsory school students receive support in special classes, often at the end of their compulsory schooling, while 1.2 percent have adjusted study programs. However, previous findings show rates to vary considerable between schools and municipalities (NAE, 2006a, 2016) and far more students in fact may be placed in special support classes than shown by official statistics (Giota & Emanuelsson, 2011; Hjärne, 2016). Empirical findings show the tradition-bound ways of organizing special education support in the regular school to have steadily increased in Sweden since the mid-1990s (Giota & Emanuelsson, 2011; Haug, 2004; NAE, 2009). A similar tendency can be observed for specialized settings/classes for specific disabilities like ADHD, where the quality of the educational activities provided is questioned (Malmqvist & Nilholm, 2016).

While countries may agree on the principle of inclusive education as all children's fundamental right to education and something to be pursued within regular schools/classes, the concept continues to be defined differently and intensively debated in different educational systems (Taneja-Johansson & Singal, 2021). Given disagreements about the meaning, extent and nature of inclusiveness, the operationalization of inclusion varies in research studies around the world. In this study, we focus on the organization of support for the learning and growth provided to students with mild intellectual disabilities (MID) and students with special educational needs (SEN) in order to explore the benefits of inclusion vs exclusion in terms of school achievement and thus opportunities for further education and participation in work and society (Emanuelsson & Persson, 2002). In this way, we can provide important evidence that both strengthen and challenge educational systems' responsibility for education of heterogeneous student populations in regular classes.

Aims of the study

The study is based on longitudinal and nationally representative data collected from 65 thousand students in seven cohorts (born 1967–2004) who attended regular schools. All students are participating in the Swedish ETF-project (Evaluation through Follow Up; Svensson, 2011). Three student groups in each birth cohort are involved; (a) students with MID in regular schools; (b) students with SEN; and (c) regular students with no MID or SEN. The uniqueness of the study is that students with MID were not administratively classified by school as with an intellectual disability. They were identified by meeting the psychometric criterion of $IQ = 70$ for MID (Gillberg & Söderström, 2003; McLaren & Bryson, 1987) as measured by identical cognitive tests developed within ETF in the 1960s (Svensson, 2011) and completed by students in all birth cohorts at the age of 13. Therefore, students with MID are not to be perceived as students with intellectual disabilities (ID) ($IQ < 70$) (Gillberg & Söderström, 2003), placed in compulsory special schools for students with learning disabilities ("grundskola") (European Agency, 2021), sometimes partly included in the regular school system, but just as regular students in regular schools and classes. As all other students in regular school, students with MID had the right to receive special education support if they had difficulties in completing their compulsory schooling successfully. Note that registers of disabilities are not permitted in Sweden. Therefore, this study is using general information collected by Statistics Sweden about whether a student has received any out of three different forms

of special education support, which was the only available until recently. Information about whether a student is placed/registered in a compulsory special school for students with learning disabilities is also available and used.

The three student groups (with MID, SEN and all other regular students) in each birth cohort are to be compared based on their achievements (marks) in grade 9, background (parental education level) and gender. By investigations of development, as measured by student achievement, the study aims (a) to identify changes in the education and organization of special support for heterogeneous student populations in the Swedish compulsory school over a period of 50 years prior and after the educational reforms in the early 1990s (Giota et al., 2019).

By using the same psychometric procedure established by Sonnander et al. (1993) for identifying students with MID in the 1967 ETF-cohort on all seven ETF-samples, the study also aims (b) to highlight the complex issue of MID and prevalence rates for 13-year-olds at the population level. This aim derives from inconsistencies in the research methods or diagnostic procedures making it difficult to say exactly how many compulsory-school age children with MID are there in Sweden (Ineland et al., 2019) or worldwide and over time (Schalock, 2011).

Educational reforms and special education support

In the early 1990s, the governance of education in Sweden went through historic administrative changes due to the decentralization and deregulation of the public sector from the state to the municipalities. Educational reforms also brought changes in the curricula and grading system, allowing free school choice, and facilitating privatization. These changes are set forth as the main reasons for Sweden's decline in compulsory school achievements in national and international large-scale assessments from the 1990s onwards. That is because the implementation of the reforms changed the teaching conditions and practices and increased the need of parental support for a student's success in school (NAE, 2009; Gustafsson & Blömeke, 2018). The decentralization gave more freedom in terms of resource allocation to local-level administrators, but forced municipalities at the same time to take responsibilities for cuts and savings in the economic declines, which were significant in the 1990s. Differences in the financial situations of the municipalities had consequences for the provision of education and for support measures, particularly in schools where the needs were at most (NAE, 2009; cf. Giota et al., 2009; Giota & Emanuelsson, 2011).

Differences in the finances of municipalities is set forth by NAE (2009, 2016) as one main reason for the increased share of students with SEN registered from the 1990s onwards. Budget cuts is suggested to be at least partly also accountable for the increases in special solutions in form of SSC in regular schools and placing students in special schools (cf. Isaksson et al., 2010). The latter is evident in particular when it comes to students with ID (NAE, 2006a, 2016) and students with immigrant background in metropolitan cities (Rosenqvist & Tideman, 2007). As found by NAE (2006b) and confirmed by the School Inspection (2011), students have been placed in special schools for children with ID (IQ < 70) also without any or after inadequate investigations for intellectual disability. In Sweden, a student is entitled to special support in the regular school irrespective of medical diagnosis. Nevertheless, schools can use "objective" or scientifically based diagnoses as a precondition for allocating extra special resources (Giota & Emanuelsson, 2011; Isaksson et al., 2007). Medical diagnosis is often a decisive factor in decisions about allocating special support in general.

Göransson et al. (2011) found permanent placement in SSC for students with diagnoses in half of the municipalities participating in a survey, while the real number may be even higher. A nationally representative study (Giota et al., 2009) shows that between 1980 and 2003 six percent of the students, or one student per class, had received support four years of their compulsory schooling in special classes and/or adjusted study programs. Again, schools may use such solutions more extensively than shown by official statistics (Giota & Emanuelsson, 2011). In Sweden and elsewhere, it is predominantly boys who are categorized as in need of special support and placed in SSC, especially those from vulnerable and low-resource homes (Giota et al., 2009; Harwood & Allan, 2014) or with immigrant background (Berhanu & Dyson, 2012).

In general, research shows no satisfactory findings in terms of achievements for students with ID (Freeman & Alkin, 2000; Rea et al., 2002) or SEN placed in SSC (Emanuelsson et al., 2001; Giota et al., 2009; Hattie, 2009; Slavin, 1990). If these classes or alternative schools also lack sufficient resources or qualified staff, they can even function as structured environments that maintain and even increase problem behavior (Ferrer-Wreder et al., 2005). Special solutions are often linked to long lasting learning problems and subsequent marginalization in many ways also in adulthood (Emanuelsson et al., 2001; Emanuelsson & Persson, 2002; Richardson, 1989; Tössebro et al., 1996). Older meta-analyses and newer reviews (Freeman & Alkin, 2000; Lindsay, 2007; Rea et al., 2002; Slavin, 1990) confirm that most school achievement studies show inclusive forms of support to be slightly more effective than exclusive forms.

Prevalence rates of intellectual disability

In older epidemiological studies in the western world and elsewhere (Greenspan, 1999), to be referred in this section, the clinical term for ID was mental retardation (MR). This classification is applied to individuals who consistently test below IQ level 70 *and* show functional impairment or maladaptive behavior. The IQ testing is based on the assumption that IQ is a normally distributed trait in the general population, implying that about 2% of all individuals have an IQ lower than 70. Most epidemiological studies report overall prevalence rates of 1–2.5% concerning mild mental retardation (MMR) with IQ from 50 to 55 to about 70, while the prevalence for severe MR (IQs lower than 50) is about 0.3–0.5% (Gillberg & Söderström, 2003). The frequencies vary substantially across studies due to study design and the heterogeneity of definitions and instruments used (McLaren & Bryson, 1987), along with circumstances and conditions that prevailed at different periods, such as the emphasis different experts were assigning to the child's IQ *vs* maladaptive behavior. In epidemiological studies carried out prior to the 1960s and until the 1980s, the frequency of MR ranged from 0.7–7.7% (Richardson, 1989). There are indications that in the USA experts gave more weight to IQ, while in the UK and Europe a child's maladaptive behavior, assessed in terms of how the child performed at school, was emphasized more. For the 10- to 14-year-olds, the prevalence during this period ranged between 1.5 and 3.5% with the USA often having the highest rates (Richardson, 1989). In reviews, the rates appear to increase with age with the highest, but also most uncertain estimates, between 10 and 20 years after which they decrease. Some high rates for 5- to 15-year-olds appear only for school-aged children and in particular during adolescence when the demands for academic competence are strongest (McLaren & Bryson, 1987). Population studies show a preponderance of MR among males, while MMR is also associated with low socioeconomic status (Gillberg & Söderström, 2003).

In the 1980s, epidemiological studies have largely been conducted in Sweden and the Scandinavian countries reporting prevalence rates of 0.7–1.4% with some showing conflicting lower estimates for MMR as compared to severe MR (Richardson, 1989). Grunewald (1979) estimated the rate for MR across all age groups in Sweden during the 1960s and 1970s to be 0.44%. In his review of these studies, Kebbbon (1987) concluded that when existing data was compared - claiming that the same psychometric criterion of $IQ \leq 70$ was used - the results were quite confusing. Psychometric tests had in fact only occasionally been used. The rates were higher when individuals on the population levels were tested and smaller if they had been classified only on the basis of their adaptive behaviors. The methods of estimation were thus one of the reasons for the rates varying from 0.67 to 2.2% during this period (cf. Gillberg et al., 1983; McLaren & Bryson, 1987).

Method

Samples

The present study involves 65 thousand students (born in 1967, 1972, 1977, 1982, 1992, 1998 and 2004), who attended regular compulsory schools in Sweden. All students are participating in the

Swedish ETF-project (Svensson, 2011). In close collaboration with Statistics Sweden, ETF has from its start in 1961 followed up 11 nationally representative samples, each comprising about 10000 students. The sample size of each cohort is about 10 percent of the total age cohort. First a stratified sample of municipalities is drawn and then a sample of schools. Participation in ETF is required by informed consent from the parents when the students are in grade 3 in the Swedish compulsory school. Students can refuse participation at any time.

Measures

Psychometric tests of cognitive ability completed in grade 6 (i.e., when students are 13-years-old). These tests are constructed within ETF in the 1960s and have not been changed over the cohorts. Their psychometric properties have been tested continuously and are regarded as providing a good indication of educational capacity (Svensson, 2011). The tests are administrated by the students' classroom teachers according to detailed written instructions by Statistics Sweden. All three are paper-and-pencil tests, each consisting of 40 items. *Number series* is an inductive reasoning test and an indicator of General Fluid intelligence (Gf), while the vocabulary test *Antonyms* is an indicator of General Crystallized intelligence (Gc). *Metal Folding* is a spatial test expected to measure General visualization (Gv) ability. Cattell's (1987) Gf/Gc distinction represents different ways to cope with challenges in the school environment. Visuospatial skills (Gv), including memory for spatial locations, are an important part in the diagnosis of the intellectual impairment of an individual (Gillberg & Söderström, 2003). Although no generally accepted definition of intelligence exists, and definitions of ID can vary depending on the used classification systems or perspectives, there are some common features to all definitions and testing. These refer to the impaired ability to process information that people with ID do share and to use acquired knowledge and academic skills in new situations (Schalock, 2011) central to the Gf/Gc distinction and Gv measured by our tests.

Inclusion criteria for students with MID. Students with MID in the seven ETF-cohorts were identified based on their results in the three cognitive tests, following the same classification procedures as in Sonnander et al. (1993) for ETF-students with MID born in 1967. Specifically, the MID groups are formed by students with a total test result of two SDs below the mean total test score (32, compared to IQ = 70) in combination with test results two SDs below the mean score on at least two of the three subtests and no scores (missing case) on the third subtest. The latter criterion was set by Sonnander et al. (1993), to minimize the number of low-scoring students among missing cases. In addition, to ensure that this was actually a group with MID, students who had scores below the cut-off points in the distribution *and* received grades including and higher than 3 (on a 5-point scale) *or* who attended advanced courses in English or Mathematics in grades 7–9 were excluded. The alternative general and advanced courses in English and Mathematics were removed in the 1980s. For purposes of comparisons across all cohorts including the 1967 the latter criteria were omitted in the study.

Forms of special education support in grades 3–9. Statistics Sweden has been collecting administrative information about students in each ETF-cohort who have received special education support in form of: (1) adjusted study programs, (2) special education class/group, or (3) inclusive support in the regular class. No information about the content or quality in support is available. Given that students in all cohorts have often received not only one form of support, but also two or three different forms over their compulsory schooling, in the analyses students have been grouped into three different support groups. Group 1 comprises those who have received *only* the inclusive form of support. Group 2 comprises those who have received inclusive support *in combination* with special education class/group *or* adjusted study programs, *or* all three types of support. Group 3 comprises those who have received support *only* in special education class/group *and/or* adjusted study programs. This classification of support has been used in previous studies in Sweden and is regarded as reliable (see Giota et al., 2009 for studies). Given that Group 3 involves support solutions to be used only if there are special reasons, the share of students in Group 3 will be small.

Grading system. Students in the 1967, 1972 and 1977 birth cohorts have received relative grades ranging from 1 to 5 on a normal distribution, where 5 was assigned to the 7% of the total number of students with the highest achievements during the year and 1 to the 7% lowest. The 1982 and 1992 cohorts are the first to be graded according to the new grading system introduced in 1996 with an absolute knowledge-based range from Not Pass (“IG” - being failed) to Pass, Pass with distinction and Pass with excellence in grades 8-9. The 1998 and 2004 cohorts received grades already in grade 6. The average merit ratings of the 1982 cohort is the summation of the 16 best subjects in the students’ final grades, with a maximum total score of 320. In 2014/2015 the way of calculating these rating was changed to include the 17 best subjects, implying a maximum total score of 340. Changes in the grading system imply that student achievements prior and after the 1990s are not fully comparable. This is not a problem given that the focus of the present study is on comparisons of patterns within the different cohorts rather than between them.

Results

Prevalence rates for MID and ID. In the study by Sonnander et al. (1993), the final proportion of MID in the 1967 cohort was established at 1.45% ($N = 116$ out of 7989). The share of students in the same age group representing all levels of ID ($IQ < 70$) who were placed/registered in grade 6 compulsory special schools was according to available statistics 0.74%. These students were not included in the ETF sample as the sample is drawn from the population of students in regular schools. Thus, by combining test results and national statistics concerning the 1967 cohort a total prevalence of 2.19% was obtained. Given the aim to make comparisons over time, in Table 1 the number of MID students in the 1967 cohort is higher than in Sonnander et al. (1993), as is the total prevalence rate (3.08%). This difference is to be explained by our decision not to use the extra criteria for excluding MID students based on grades and that our analyses are based on weighted data obtained by Statistics Sweden not previously available.

Table 1 shows the share of MID in regular grade 6 schools, along with proportions of ID in grade 6, 9 and 12 special schools. As can be seen, the share of students with MID who went to school during the 1970s to late 1990s increased progressively (cohorts 1967–1982). From 2005 to 2011 a substantial decrease of students with MID can be noted (a difference of 1% between the 1982 and 1998 cohorts) followed by a substantial rise displayed in 2017 by the 2004 cohort. The reversed pattern is seen regarding students with ID in compulsory grade 6 special schools, with a considerable high increase between 2005 and 2011. Those born in 2004 display the lowest rates for ID in 37 years. The rates appear to increase progressively by age with the highest rates for ID seen in the teenage group (grade 12), and for those teens born in 1992 and 1998, in particular.

According to available statistics, the proportions of students in the same age groups as the ETF-samples, who represent all levels of ID ($IQ < 70$) attending special schools for students with ID, vary from 0.61% in 1980–1.01% in 2017. By combining the cognitive test results of each MID group and

Table 1. Proportion (%) and Number (N) of ETF-students with MID in regular grade 6 schools and students with ID in special schools born in 1967 onwards.

Cohorts	MID grade 6 regular schools	ETF-samples, grade 6 N	ID grade 6 special schools	Total ID grade 6%	ID grade 9 Special schools	ID grade 12 Special upper secondary schools
1967	2.34 (213)	9104	0.74	3.08	-	-
1972	2.63 (250)	9504	0.79	3.41	-	-
1977	2.74 (110)	4018	-	2.74	-	0.91 (919)
1982	2.76 (210)	7597	0.65 (646)	3.41	0.78 (779)	1.14 (1147)
1992	2.05 (169)	8233	1.01 (1271)	3.06	1.35 (1730)	1.73 (2298)
1998	1.86 (149)	8007	0.97 (941)	2.83	1.02 (1036)	1.34 (1461)
2004	2.13 (112)	5247	0.61 (697)	2.74	0.96 (1112)	-

Notes: No figures in case of missing information.

Total ID is defined by MID + ID in those schools.

Table 2. Proportion (%) and Number (N) of ETF-students with MID and others with no MID in regular compulsory schools born in 1967 onwards by background variables.

Cohorts		Boys	Girls	N	Lower ¹ education	Higher ¹ education	No info	N
1967	MID	56 (118)	43 (94)	212	89 (188)	10 (12)	1 (3)	213
	Others ²	50 (3979)	40 (3911)	7890	74 (5799)	25 (1987)	1 (104)	7890
1972	MID	63 (158)	37 (93)	251	72 (179)	10 (26)	18 (46)	251
	Others	51 (4061)	49 (3935)	7996	67 (5370)	26 (2306)	4 (320)	7996
1977	MID	44 (48)	56 (62)	110	76 (84)	11 (12)	13 (14)	109
	Others	53 (2052)	47 (1844)	3896	61 (2368)	37 (1457)	2 (71)	3896
1982	MID	54 (113)	46 (97)	210	82 (172)	15 (32)	3 (7)	210
	Others	51 (3766)	49 (3597)	7363	59 (4339)	40 (2975)	0.7 (49)	7363
1992	MID	54 (91)	46 (78)	169	73 (123)	26 (43)	1 (2)	168
	Others	50 (4024)	50 (3817)	7841	53 (4268)	46 (3727)	0.4 (36)	8031
1998	MID	62 (92)	38 (56)	148	78 (115)	21 (31)	1 (2)	148
	Others	51 (4027)	49 (3831)	7858	45 (3538)	55 (4283)	0.3 (21)	7842
2004	MID	64 (72)	36 (40)	112	68 (76)	28 (31)	4 (5)	112
	Others	50 (2560)	50 (2551)	5111	41 (2086)	59 (3001)	0.5 (23)	5111

Notes: ¹ Higher education: parents with one year or longer post-secondary or higher education; Lower education: parents with upper secondary education or lower. For some students and in particular for cohorts 1972 ($N = 368$) and 1977 ($N = 80$) information about parental education level is not available.

²Others in Tables 3 and 4 are students who have scores in at least two cognitive tests.

national statistics for ID, the total prevalence rates for MID at the age of 13 over a period of 37 years in Sweden appear to vary between 2.74 and 3.41%.

Background factors. Table 2 shows MID to be more profound for boys as compared to girls in almost all cohorts, except for the 1977. The proportion is about 1.25:1 (varies between 1.77 and 1.17:1). In all cohorts, most students with MID are coming from homes with upper secondary school at most (89–68%). The share of MID students from homes with high educational resources has increased over time (10–28%) as has the corresponding share of regular students (25–59%) with no MID.

Special education support. Table 3 shows the occurrence of support in the MID and SEN groups in grades 3–9. First, not all students with MID appear to have received special support. However, in four out of seven cohorts, this was the case for about 90% during some part of their schooling. From 2002 to 2014, the special education provision rates dropped gradually for those born in 1998 and 2004 (a decrease with 12% between the 1992 and 2004 cohorts). For students with SEN, the rates increased progressively from 21 to 40% from the late 1970s to the mid-1990s. Thereafter the opposite trend is noted. Second, students with MID in all cohorts received the inclusive Group 1 type of support more often than students with SEN (30–45% across all cohorts compared to 15–30%, respectively). From the mid-1990s onwards, about half of the students with MID born in 1982

Table 3. Support allocation in the seven ETF-cohorts in grades 3–9 and type of support concerning MID students and others.

MID students support 3–9	1967 ¹	1972	1977	1982	1992	1998	2004
Group 1	38(81)	45(112)	43(47)	40(83)	32(55)	28(42)	28(31)
Group 2	33(71)	45(112)	46(51)	49(103)	54(91)	53(78)	42(47)
Group 3	9(8)	1(3)	1(1)	2(4)	4(6)	3(4)	8(9)
All 3 types %	80	91	90	91	90	84	78
No support	20(43)	10(24)	9(10)	9(20)	10(17)	16(24)	22(25)
N	213	251	110	210	169	148	112
Others Support 3–9							
Group 1	16(1290)	26(2093)	30(1160)	27(2012)	22(1724)	18(1425)	15 (754)
Group 2	3(266)	7(546)	10(381)	9(650)	10(833)	11(850)	6 (328)
Group 3	2(155)	1(87)	2(71)	4(262)	2(190)	2(129)	4 (183)
All 3 types %	21	34	42	40	34	31	25
No support	78(6149)	66(5271)	58(2285)	60(4440)	66(5284)	69(5437)	75(3847)
N	7860	7997	3897	7364	8031	7841	5112

Notes: ¹The information about special support for the 1967 cohort includes only grades 6–9.

Percentages (N).

Table 4. Mean (M) and standard deviation (Sd) statistics concerning years with special education support in grades 3–9 for MID and SEN students by gender.

MID	Boys M (SD)	Girls M (SD)	All M (SD)	N	SEN	Boys M (SD)	Girls M (SD)	All M (SD)	N
1967 ¹	2.54 (1.03)	2.51 (1.15)	2.53 (1.08)	170		1.66 (0.88)	1.42 (0.75)	1.58 (0.85)	1712
1972	4.68 (1.84)	3.94 (1.94)	4.42 (1.91)	227		2.91 (1.80)	2.43 (1.50)	2.74 (1.71)	2725
1977	4.73 (1.68)	4.05 (1.86)	4.36 (1.80)	99		2.92 (1.79)	2.48 (1.59)	2.74 (1.72)	1611
1982	4.43 (1.74)	4.40 (1.79)	4.42 (1.76)	190		2.78 (1.83)	2.16 (1.51)	2.53 (1.73)	2924
1992	4.00 (1.89)	3.57 (1.88)	3.81 (1.89)	152		2.67 (1.72)	2.36 (1.56)	2.52 (1.66)	2747
1998	4.76 (1.69)	4.48 (1.68)	4.65 (1.69)	140		2.94 (1.89)	2.63 (1.75)	2.80 (1.83)	3309
2004	3.35 (1.50)	3.03 (1.58)	3.23 (1.53)	94		2.47 (1.65)	2.27 (1.50)	2.38 (1.58)	1523

Notes: ¹ The information about years of special support for the 1967 cohort includes only grades 6–9.

onwards received the more segregated Group 2 type of support, which started to increase progressively, while inclusive support was diminishing for both MID and SEN students. In 2017, the use of Group 3 type of support for both MID and SEN students appears to have doubled compared to previous years. A pattern not presented in a Table, indicates that for both MID and SEN students special support is more frequent in the lower grades - especially in grades 3 and 4 - than in grades 7–9.

Gender differences in special support. As can be seen in Table 4, boys in all cohorts and groups were more likely to receive support for longer periods. A comparison not in a Table shows 40% of the boys with MID in the 1972 cohort and 32% in the 1977 to have received special support throughout grades 3–9 (6–7 years out of 9). The corresponding figures for girls are 20% and 28%, respectively. Equally many (25%) of both sexes had such prolonged support in the 1982 cohort, while a gender difference appears again in the later cohorts. For boys in the SEN groups the corresponding figures in the early cohorts are 5% and for girls 2%, with about similar proportions in the later cohorts.

Given the low number of those receiving Group 3 type of support divided by gender, this support is not included in Table 5. As can be seen, prior to the mid-1990s boys with MID or SEN were more likely to receive inclusive support. After that a dramatic increase of the more segregated Group 2 type of support for boys with MID can be noted (from 45 to 60%). The corresponding proportion for boys with SEN does not change considerably and is about 12%. From the mid-1990s onwards, girls with MID more often received inclusive support. No such gender difference is present in the SEN groups. A pattern not presented in a Table shows that almost double as many girls with MID (about 10 in each cohort) did not receive any special support at all during their compulsory schooling.

Student achievement prior to 1996. The descriptive pattern regarding all student groups in Table 6 shows girls, students from well-educated homes, and those with inclusive support to attain higher achievements in grade 9 than boys, students from homes with low educational resources and those receiving the more segregated Group 2 type of support. In all groups with SEN students, the Group 3 type of support appears to be more beneficial than Group 2 support. The number of MID

Table 5. Support allocation in the seven ETF-cohorts in grades 3–9 and type of support concerning MID and SEN students by gender. Percentages (N).

MID, Support 3–9	1967	1972	1977	1982	1992	1998	2004
Group 1, boys	39 (46)	45 (70)	42 (20)	49 (55)	30 (27)	17 (16)	10 (4)
girls	36 (34)	45 (42)	43 (27)	29 (28)	36 (28)	47 (27)	37 (27)
Group 2, boys	35 (41)	48 (76)	54 (26)	45 (51)	59 (54)	61 (57)	60 (24)
girls	32 (30)	38 (36)	41 (26)	54 (52)	47 (37)	37 (22)	32 (23)
SEN, Support 3–9							
Group 1, boys	22(857)	32(1322)	33 (682)	30 (1146)	22 (906)	19 (776)	16 (420)
girls	11(433)	20 (770)	26 (478)	24 (866)	21 (818)	17 (650)	13 (334)
Group 2, boys	5(183)	9 (356)	12 (247)	12 (451)	12 (496)	13 (510)	7 (184)
girls	2 (83)	5 (190)	7 (133)	6 (198)	8 (338)	9 (340)	6 (144)

Notes: The information about years of special support for the 1967 cohort includes only grades 6–9.

Table 6. Mean grades (Standard Deviations) for ETF-students with MID and Others with no MID divided by gender, parental education level and type of special support received.

ETF-1967	MID students	N ¹	Others	N ¹
Boys	2.16 (0.51)	114	3.15 (0.76)	3910
Girls	2.44 (0.66)	86	3.51 (0.73)	3860
All	2.28 (0.59)	200	3.33 (0.77)	7770
Lower parental education	2.26 (0.57)	180	3.21 (0.75)	5729
Higher parental education	2.46 (0.79)	19	3.69 (0.71)	1958
No information	2.95 (-)	1	3.14 (0.81)	84
All	2.28 (0.59)	200	3.33 (0.77)	7770
Group 1 support	2.41 (0.58)	77	2.69 (0.59)	1264
Group 2 support	1.99 (0.54)	66	2.25 (0.74)	247
Group 3 support	2.25 (0.60)	17	2.60 (0.79)	146
No special support	2.50 (0.47)	40	3.41 (0.65)	6113
All	2.28 (0.59)	200	3.24 (0.73)	7770
ETF-1972	MID students	N ¹	Others	N ¹
Boys	2.17 (0.49)	149	3.11 (0.69)	4019
Girls	2.48 (0.52)	80	3.40 (0.65)	3888
All	2.28 (0.52)	229	3.25 (0.68)	7906
Lower parental education	2.32 (0.53)	168	3.14 (0.66)	5330
Higher parental education	2.32 (0.49)	26	3.57 (0.61)	2283
No information	2.05 (0.47)	35	2.93 (0.81)	293
All	2.28 (0.52)	229	3.25 (0.68)	7906
Group 1 support	2.39 (0.43)	108	2.87 (0.59)	2077
Group 2 support	2.02 (0.49)	96	2.50 (0.62)	509
Group 3 support	2.82 (0.68)	3	2.67 (0.67)	78
No special support grades 3–9	2.78 (0.49)	23	3.49 (0.59)	5242
All	2.28 (0.52)	229	3.25 (0.68)	7906
ETF-1977	MID students	N ¹	Others	N ¹
Boys	2.31 (0.57)	47	3.10 (0.67)	2035
Girls	2.62 (0.64)	58	3.36 (0.66)	1833
All	2.48 (0.63)	105	3.22 (0.68)	3869
Lower parental education	2.41 (0.56)	82	3.05 (0.65)	2354
Higher parental education	2.28 (0.63)	12	3.49 (0.64)	1450
No information	3.20 (0.70)	12	3.48 (0.60)	65
All	2.48 (0.63)	105	3.22 (0.63)	3869
Group 1 support	2.71 (0.63)	44	2.93 (0.56)	1150
Group 2 support	2.18 (0.45)	50	2.49 (0.62)	372
Group 3 support	1.83 (-)	1	2.86 (0.69)	70
No special support grades 3–9	3.00 (0.69)	11	3.50 (0.58)	2277
All	2.48 (0.63)	105	3.22 (0.68)	3869

Notes: ¹ All with subject grade information in grade 9 and cognitive test data in grade 6.

students with this type of support is small and not comparable. A pattern not presented in a Table shows students in the 1970s and 1980s with MID to be among those attaining a grade of 1 or 2. About 15% of the boys and 5% of the girls achieved a grade of 1, while 10% received no grades. Most of these students attended the general courses in English and Mathematics. In Swedish about 20–30% of the group achieved a grade of 3. In the relative grading system, a grade of 2 in Swedish, English and Mathematics were entry requirements for the national study programs at the upper secondary school, meaning that most of the students with MID were qualified for such studies as were their peers with SEN.

Student achievements after 1996. Table 7 display comparable descriptive analyses as in Table 6 based though on calculations of average merit ratings. The overall achievement pattern is similar, showing the top achievers to be girls, students from high-educated homes and students with inclusive support. Again, MID students do not form a homogeneous group of low achievers. Girls and students from highly educated homes in the MID groups seem to have done relatively well in grade 9. Again, Group 3 type of support appears to be more beneficial for SEN students than Group 2.

Table 7. Mean grades (Standard Deviations) for ETF-students with MID and Others with no MID, divided by gender, parental education level and type of special support received.

ETF-1982	MID students	N ¹	Others	N ¹
Boys	126.12 (61.34)	97	194.91 (53.54)	3685
Girls	130.48 (60.36)	81	218.21 (52.18)	3532
All	128.10 (60.76)	178	206.31 (54.14)	7217
Lower parental education	123.12 (60.66)	144	191.76 (52.94)	4248
Higher parental education	159.65 (47.26)	29	227.65 (48.71)	2928
No information	94.86 (78.59)	6	190.10 (40.15)	41
All	128.10 (60.77)	178	206.31 (54.14)	7217
Group 1	148.34 (43.53)	72	181.77 (47.89)	1957
Group 2	99.42 (60.88)	81	147.44 (55.06)	608
Group 3	93.43 (64.84)	4	203.21 (58.62)	253
No special support grades 3–9	177.87 (54.37)	20	225.56 (45.34)	4398
All	128.10 (60.77)	178	206.31 (54.14)	7217
ETF-1992	MID students	N ¹	Others	N ¹
Boys	119.67 (64.50)	74	204.52 (58.51)	3932
Girls	148.64 (55.49)	62	225.07 (61.20)	3891
All	132.96 (62.03)	136	214.74 (60.74)	7823
Lower parental education	133.47 (58.60)	97	196.22 (60.46)	4154
Higher parental education	130.88 (70.99)	38	235.93 (53.66)	3651
No information	180.00 (-)	1	191.10 (75.57)	17
All	132.96 (62.03)	136	214.74 (60.74)	7823
Group 1	147.94 (52.83)	51	190.72 (52.83)	1673
Group 2	108.70 (60.42)	67	141.28 (64.51)	750
Group3	152.60 (70.30)	5	155.14 (71.34)	182
No special support grades 3–9	189.54 (44.50)	14	235.08 (49.00)	5218
All	132.96 (62.03)	136	214.74 (60.74)	7823
ETF-1998	MID students	N ¹	Others	N ¹
Boys	129.28 (54.05)	86	207.59 (54.23)	3963
Girls	168.47 (46.42)	47	230.01 (56.28)	3751
All	143.17 (54.64)	134	218.49 (56.36)	7714
Lower parental education	133.86 (49.89)	103	196.15 (56.77)	3469
Higher parental education	181.53 (51.69)	28	237.01 (48.69)	4224
No information	85.73 (89.33)	2	184.40 (72.58)	21
All	143.17 (54.64)	134	218.49 (56.36)	7714
Group 1	158.61 (35.78)	38	192.84 (47.32)	1397
Group 2	118.64 (54.94)	68	145.13 (65.27)	811
Group3	184.07 (32.32)	4	201.36 (46.06)	123
No special support grades 3–9	181.65 (47.18)	24	236.58 (44.34)	5384
All	143.17 (54.64)	134	218.49 (56.36)	7714
ETF-2004	MID students	N ¹	Others	N ¹
Boys	131.36 (72.00)	49	216.32 (61.10)	2474
Girls	140.18 (67.86)	31	239.65 (66.27)	2430
All	134.66 (70.13)	81	227.88 (64.77)	4904
Lower parental education	121.00 (72.97)	52	202.31 (67.49)	2010
Higher parental education	166.81 (58.72)	24	245.82 (56.35)	2874
No information	125.12 (45.02)	5	219.01 (52.33)	20
All	134.66 (70.13)	81	227.88 (64.77)	4904
Group 1	118.23 (77.62)	18	114.37 (79.00)	294
Group 2	125.50 (66.33)	32	196.80 (59.05)	721
Group3	97.78 (77.84)	9	154.73 (82.63)	136
No special support grades 3–9	176.96 (47.58)	22	245.40 (48.81)	3753
All	134.66 (70.13)	81	227.88 (64.77)	4904

Notes: ¹ All with subject grade information in grade 9 and cognitive test data in grade 6.

Discussion

Prevalence rates

The present study aimed to discern prevalence rates for MID among 13-year-olds in Sweden from the 1970s to 2017. After the same cut-off points in three cognitive test score distributions were applied to the data from seven birth cohorts the rates was found to vary between 1.86 and 2.76%. After the shares of students of the same age with all levels of ID (IQ < 70) attending/

being registered in compulsory special schools were added, the theoretical prevalence rates for MID on the population level was found to be somewhat higher than the 2–3% predicted from a normal distribution of IQs (McLaren & Bryson, 1987), varying between 2.74 and 3.41%. These rates are like those of 3.5% in previous American studies in which more weight was given to IQ rather than adaptive social measures (Richardson, 1989). We believe that rates of 0.44% and 0.7–1.4% prevailed in the 1960s and 1970s in Sweden and Scandinavia may be underestimated or differ due to methods of estimation (Kebbon, 1987; McLaren & Bryson, 1987) and/or circumstances and conditions prevailing at that period (Richardson, 1989).

Official statistics in Sweden (Table 1) show higher shares of children in the 1967 and 1972 birth cohorts (0.74–0.79%) being placed/registered in grade 6 special schools as compared to those in the 1982 cohort (0.65%). We found lower rates for students with MID in the 1967 and 1972 cohorts (2.34–2.63%) and higher in cohorts 1977 and 1982 (2.74–2.76%). These patterns are in line with Richardson (1989) who argues that until the mid-1970s placing students with low achievements in special schools due to intellectual deficiency was still common practice in the Scandinavian countries. The diminishing proportions of children in special schools up to the 1990s are thought to reflect a growing awareness in the western world of the stigmatizing consequences of classifying and labeling children. This awareness contains also a recognition that segregating children in special schools or special support solutions within regular schools could deprive them from important experiences that could support their socialization and development in regular classes (cf. Ineland et al., 2019; Tössebro et al., 1996).

This picture changed radically from the 2000s onwards. The rates for MID in the 1992 and 1998 cohorts were diminished to 2.05 and 1.86%, while ID rates in grade 6 special schools increased dramatically between 2005 and 2011 to 1.01 and 0.97%, which are the highest rates since the 1970s and 1980s. According to NAE (2006a), placing children in special schools almost doubled between 1993 and 2006 (from 0.8–1.4%), while in 2011 the rates continued to be high (NAE, 2016). This development concerns particularly students with intellectual disabilities (Ineland et al., 2019; NAE, 2006b, 2016). As stated by NAE (2006b), given recurring financial cuts in the 1990s, the introduction of a new grading system (with “IG” - being failed) which resulted in more students with difficulties while the teacher-student ratios remained the same, and increased demands for independent work, meeting the needs of students with MID in regular schools has become increasingly difficult (p. 13). Another explanation to this development is that municipalities can seek funding from a central pot with resources for students placed in special schools (cf. Tideman, 1998). This procedure can provide regular schools with an extra financial contribution if students are kept as integrated in the regular school. Hence, while until the 1990s there was a strong criticism in Scandinavia towards placing children in special schools and a movement towards a “dismantling” of those (Tössebro et al., 1996), given changed conditions for the regular school the criticism has changed the last decade (Göransson et al., 2020).

Background and gender

In line with previous research, our findings show a significant overrepresentation of students with low parental education level in all MID (Gillberg & Söderström, 2003) and SEN groups. The significant overrepresentation of boys categorized as with MID is also in line with most other studies (McLaren & Bryson, 1987). The same goes for boys classified as with SEN (Berhanu & Dyson, 2012) and placed in special support classes/solutions. These findings strengthen the already known fact that ID and SEN intersect with other dimensions of exclusion (Harwood & Allan, 2014; Taneja-Johansson & Singal, 2021). An intriguing finding is though that prior to the mid-1990s boys with MID and SEN were more likely to receive inclusive support. After that more boys with MID received the more segregated Group 2 form of support, while for girls the inclusive support increased. In Sweden, girls show greater academic motivation and higher achievements in all school subjects in grade 9. The achievement advantage of girls is displayed by girls in all our groups. Girls

are also more willing to adhere to social rules and role expectations in the classroom than boys who confront adults and display “problematic behavior” more openly (Giota & Bergh, 2021). A consequence of this may be that the problems of girls do not receive the same degree of exposure and attention as those of boys and are thus less visible to handle.

Special education support and achievement

The present study shows the special support interventions in the Swedish compulsory school system to have been relatively extensive over the last 50 years (Table 3). A rather substantial increase in share of students receiving special education support appears in the 1970s to the mid-1990s (21% to 42%). From 2002 to 2014 the proportions diminished to slightly over 30% and after that dropped to 25%. These substantial changes are evidence enough that the allocation of special education support relates to factors other than ability only (Emanuelsson et al., 2001; Giota et al., 2009; Giota & Emanuelsson, 2011; NAE, 2006b, 2009, 2016).

As noted, prior to the mid-1990s students with MID and SEN students were more likely to receive inclusive support. Given the growing awareness of the consequences of exclusion (Richardson, 1989; Tössebro et al., 1996) teachers in the 1970s and 1980s may have tried even harder to adapt the classroom practices to all students’ prerequisites and learning needs in the regular class. In the 2000s, the difference between MID students with inclusive support and those with the more segregated Group 2 support increased with about 25%. The inclusive support among students with SEN diminished as well. Of particular interest is the share of students with support given in special classes and/or adjusted study programs (Group 3 type of support) that was doubled from 2014 to 2017 for both MID (8%) and SEN (4%) students. These findings confirm that segregated special solutions are not unusual (Giota et al., 2009; Giota & Emanuelsson, 2011; Göransson et al., 2011; Hjärne, 2016; Malmqvist & Nilholm, 2016) and increasing.

Our findings show high achievers in all MID and SEN groups to be girls, students from highly educated homes and students receiving inclusive support. The latter finding is in line with previous research on the benefits of the inclusive forms of support and being part of a community (Emanuelsson et al., 2001; Freeman & Alkin, 2000; Lindsay, 2007; Rea et al., 2002). Interesting enough is also a previous study (Giota et al., 2009) on SEN students in the 1982 ETF-cohort showing high parental education to compensate for low scores on the cognitive tests, while controlling for ability. Students from highly educated homes attained high achievements in grade 9 although their results on the cognitive tests was among the 25% lowest and they had received special education support in grades 3–9. In line with this study and previous research (cf. Giota et al., 2019; NAE, 2009) our findings point to the increasing importance of family background as a key factor for a student’s success in school.

The lowest achievements in all MID and SEN groups are displayed by students who had received the more segregated Group 2 type of support through their compulsory schooling and/or for longer periods. Overall, a minor group of SEN students with the exclusive Group 3 type of support seem like to have done well in grade 9. This type of support was received for limited periods and mostly at the final years of compulsory school (cf. Giota et al., 2009).

Limitations

Previous studies on changes in the test scores from the 1960s to 2000s within ETF (Svensson, 2011) indicate that the averages of all three tests were somewhat higher in the mid-1980s as compared to the early 1960s. After that the results are more split. To test how IQ gains and losses on the national level may have affected the cut-off points in the cognitive test score distributions has been outside the scope of our study. This is an issue to be consider in future research.

Conclusions

In the literature, prevalence rates for ID vary according to how intelligence and disability is defined and measured along with difficulties in operationalizing the concept of social adaptation (McLaren & Bryson, 1987; Richardson, 1989). Consequently, our rates based on representative population samples and the same psychometric standardized methodology to detect the milder forms of intellectual disability for 13-year-olds over a period of 50 years in Sweden is a contribution to the scientific field worldwide. Our findings may also intensify the demands on investigative methodology for placing students with MID (IQ < 70) in special schools (cf. School Inspection, 2011) and contribute to a new discussion about the reasons for and consequences of such placement. In line with previous research, we believe that disability is not a fixed category. But varies by age and context and intersects with gender and social background (Gillberg & Söderström, 2003), which are other important markers of social exclusion (Berhanu & Dyson, 2012) that require special attention.

Studies in Sweden and elsewhere show that educational difficulties are most often explained as shortcomings of the individual child (Giota & Emanuelsson, 2011; Haug, 2004; Taneja-Johansson & Singal, 2021). Through the years less attention has been given to organizational factors or vulnerable life situations such as poverty or parents illness that affect children's difficulties concentrating or behavioral problems in school (Harwood & Allan, 2014). We believe that seeing educational difficulties as mainly biological/psychological is to prolong the marginalization of already vulnerable student groups (Berhanu & Dyson, 2012; Booth & Ainscow, 1998; Haug, 2004).

Our findings about the organization of support for the learning and growth provided to students with difficulties in school show inclusive support to be more prevailing prior to the mid-1990s and diminishing after that. This concerns especially boys and students from homes with low educational resources in all MID and SEN student groups. Increases in placing certain student groups in special schools (Rosenqvist & Tideman, 2007), or as shown by our findings in special support solutions, can be seen as adhering to the same pattern. That is, as the increasing difficulty of the regular school to provide all students with equal opportunities to learn (cf. Giota & Emanuelsson, 2011; NAE, 2006b, 2009).

Increases in more or less permanent special support solutions discourage nevertheless inclusion. The risk is also that such solutions contribute to the uniformity of regular school activities rather than the development of inclusion and inclusive practices adapted to the needs of all students in a school for all (Emanuelsson et al., 2001; Taneja-Johansson & Singal, 2021; Tössebro et al., 1996).

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